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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/067,992	02/08/2002	Takafumi Nakahama	065905-0248	9942

22428 7590 06/28/2005

FOLEY AND LARDNER  
SUITE 500  
3000 K STREET NW  
WASHINGTON, DC 20007

EXAMINER

DUONG, THO V

ART UNIT	PAPER NUMBER
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3743

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/067,992	<b>Applicant(s)</b> NAKAHAMA, TAKAFUMI	
	<b>Examiner</b> Tho v. Duong	<b>Art Unit</b> 3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2004.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 2-19 is/are pending in the application.  
4a) Of the above claim(s) 3-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2, 18 and 19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 October 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION*****Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/13/2004 has been entered.

***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "2a" and "1" have both been used to designate heat sources on page 8, lines 15-17, in the specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 3743

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 2 and 18-19 are rejected under 35 U.S.C. 102(a) as being anticipated by applicant's admitted prior art (AAPA). Applicant discloses a prior art (figures 1A and A as bellow) that read on the claimed invention. The prior art further discloses (figure 1C) the claimed subject matter of applicant's claim 18.

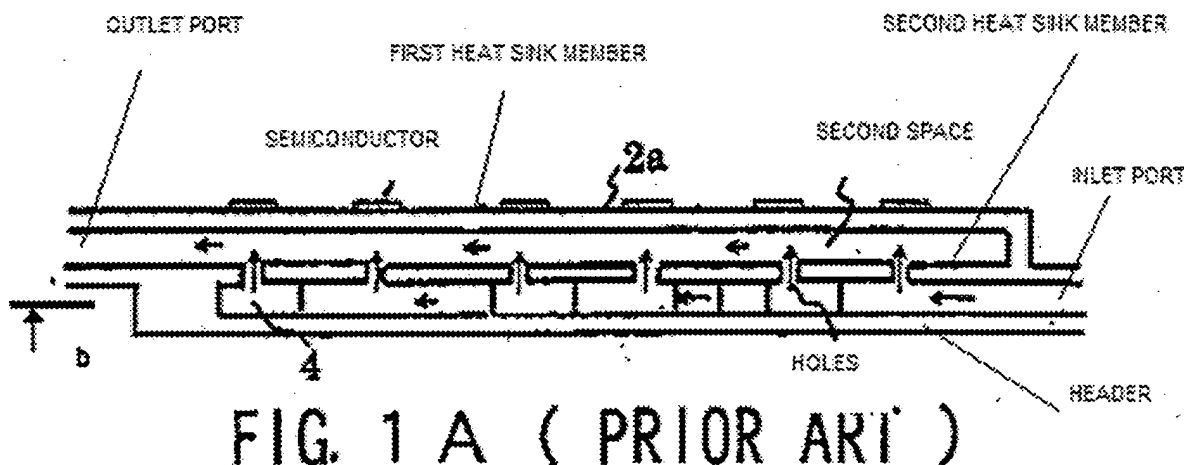


Figure A: The modified figure corresponds to Figure 1A with limitation shown

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quon et al. (US 5,316,075) in view of Frey et al. (US 5,978,220). Quon discloses (figure 1, column 2, lines 35-69 and column 2, lines 47-48) a cooling device (10) for a heat source comprising a heat sink including a coolant, the heat sink comprising a first heat sink member (16) with a semiconductor device (18) arranged at an outer surface of the first heat sink member (16) and a second heat sink member (14) provided with a plurality of holes (36-46) in which the coolant that cools the heat source being made to pass through the holes (36-46). The cooling device (10) further comprises a header (12) configured to an opposite side to the heat sink member (16) about the second heat sink member (14) as an axis; an inlet port (26) whereby the coolant is made to flow into a first space (28) surrounded by the header and the second heat sink member (14); and an outlet port (48 or 34) whereby the coolant in a second space (50) surrounded by the first heat sink member (16) and a second heat sink member (14) is made to flow out. As regarding claim 18, Quon discloses (figure 6 and figure A) that the plurality of holes comprises a first hole, a second hole and a third hole arranged in sequence along a peripheral line without intervening holes and wherein the distance between the first hole and the second hole is different than the distance between the second hole and the third hole. Quon does not disclose that the semiconductor module (18) has a plurality of semiconductors for cooling. Frey discloses (figure 1 and column 1, lines 5-30 and column 4, lines 2-17) a cooling system that has a semiconductor module (14) having a plurality of semiconductors (8a-h) forming a logical functional unit mounted on an outer surface of a heat sink (1) for the purpose of cooling at least a logical functional unit used in industrial drives. Since Quon and Frey are both from the same field of endeavor and/or analogous art, it would have been obvious to one having ordinary skill in the art

Art Unit: 3743

to use Frey's teaching in Quon's cooling system for the purpose of cooling at least a logical functional unit used in industrial drives.

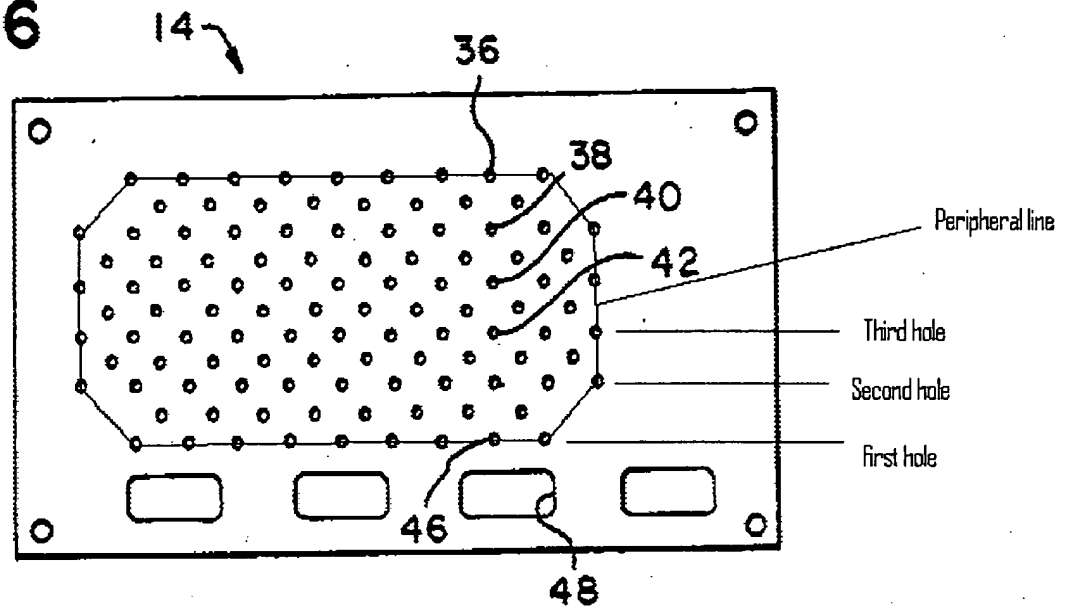
**FIG-6**

Figure A: The modified figure corresponds to figure 6 with limitation shown.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fahey et al. (US 5,239,443) discloses a blind hole cold plate cooling system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v. Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F (first Friday off).

Art Unit: 3743

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennet can be reached on 571-272-4791. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tho v Duong  
Primary Examiner  
Art Unit 3743



TD  
June 16, 2005